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**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
WASHINGTON, D.C. 20555-0001

November 16, 2018

Mr. Jeffrey D. Isakson
Chief Executive Officer/President
Interim Storage Partners LLC
P.O. Box 1129
Andrews, TX 79714

**SUBJECT: INTERIM STORAGE PARTNERS' LICENSE APPLICATION TO CONSTRUCT
AND OPERATE THE WASTE CONTROL SPECIALISTS CONSOLIDATED
INTERIM STORAGE FACILITY, ANDREWS COUNTY, TEXAS, DOCKET NO.
72-1050 – FIRST REQUEST FOR ADDITIONAL INFORMATION, PART 1**

Dear Mr. Isakson,

By letter dated July 19, 2018, (Agencywide Documents Access and Management System (ADAMS) Accession No. ML18206A595), Interim Storage Partners LLC (ISP), a joint venture of Waste Control Specialists LLC (WCS) and Orano CIS LLC (a subsidiary of Orano USA), requested that the U.S. Nuclear Regulatory Commission (NRC) resume all safety and environmental review activities associated with the proposed WCS Consolidated Interim Storage Facility (WCS CISF) license application. ISP requested authorization to store up to 5,000 metric tons of uranium for a period of 40 years in the WCS CISF.

The NRC staff is conducting a detailed technical review of your application and has determined that additional information is necessary to complete its review. The information needed by the NRC staff is discussed in the enclosed request for additional information (RAI). As discussed in our August 21, 2018, letter notifying you of our decision to resume the WCS CISF technical review, the NRC staff expects to issue its first round RAIs in two parts (ADAMS Accession No. ML18225A281). The enclosed RAIs address selected portions of the NRC staff review performed to date, and additional RAIs will be issued in the future as the NRC staff continues its review.

We request that you provide responses within 60 days from the date of this letter. If you are unable to meet these deadlines, please notify NRC staff in writing, within two weeks of receipt of this letter, of your new submittal date and the reasons for the delay.

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Please reference Docket No. 72-1050 and CAC/EPID 001028/L-2017-NEW-0002 in future correspondence related to the technical review for this licensing action. If you have any questions, please contact me at (301) 415-0262.

Sincerely,

/RA/

John -Chau Nguyen, Senior Project Manager
Spent Fuel Licensing Branch
Division of Spent Fuel Management
Office of Nuclear Material Safety
and Safeguards

Docket No. 72-1050

CAC/EPID No. 001028/07201050/L-2017-NEW-0002

Enclosures:

1. 1st Round RAIs – Part 1 (Non-Proprietary)
2. 1st Round RAIs – Part 1 (Proprietary)

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INTERIM STORAGE PARTNERS' LICENSE APPLICATION TO CONSTRUCT AND OPERATE THE WASTE CONTROL SPECIALIST CONSOLIDATED INTERIM STORAGE FACILITY, ANDREWS COUNTY, TEXAS, DOCKET NO. 72-1050 – FIRST REQUEST FOR ADDITIONAL INFORMATION, PART 1, DOCUMENT DATE: November 16, 2018

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First RAI Part 1 non proprietary.docx

ADAMS Pkg Accession No.: ML18320A183 LTR: ML18320A184
ENCL 2: ML18320A185

OFC:	NMSS/SFM	NMSS/SFM	NMSS/SFM	NMSS/SFM	NSIR/DPR	NMSS/DUWP
NAME:	JNguyen	WWheatley	JGwo	DDunn	MNorris	BWatson
DATE:	9/18/2018	10/02/2018	9/25/2018	9/25/2018	9/20/2018	11/8/18
OFC	NRO/DLSE	NRO/DLSE	NRO/DLSE	NRO/DLSE	NMSS/SFM	NMSS/DUWP
NAME	TSeshagiri	DHeeszel	ZXi	JThompson	CBajwa	RFedors
DATE	9/24/2018	9/24/2018	9/25/18	9/24/2018	11/13/18	11/8/18
OFC	NRO/DLSE	NRO/DLSE	NMSS/SFM	NSIR/DPR	NMSS/SFM	
NAME	JStirewalt	MDudek	MRahimi (J. Wise for)	JAnderson	JMcKirgan	
DATE	10/1/2018 (11/7/18)	9/24/2018	10/4/2018	9/20/2018	11/16/2018	

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**First Request for Additional Information, Part 1 (non-proprietary)
Docket No. 72-1050**

WCS Consolidated Interim Storage Facility in Andrews County, Texas

By letter dated July 19, 2018, (NRC Agencywide Documents Access and Management System (ADAMS) Accession No. ML18206A595), Interim Storage Partners LLC (ISP), a joint venture of Waste Control Specialists LLC (WCS) and Orano CIS LLC (a subsidiary of Orano USA), requested that the U.S. Nuclear Regulatory Commission (NRC) resume all safety and environmental review activities associated with the proposed WCS Consolidated Interim Storage Facility (WCS CISF) license application. ISP requested authorization to store up to 5,000 metric tons of uranium for a license term of 40 years in the WCS CISF application.

This request for additional information (RAI) identifies additional information needed by the NRC staff to complete its safety review of the WCS CISF license application. The requested information is sorted by the specific part of the license application, or the specific chapter or section number in the safety analysis report, or their respective supporting analyses. The NRC staff used the guidance in NUREG-1567, "Standard Review Plan for Spent Fuel Dry Storage Facilities."

Safety Analysis Report (SAR), Chapter 2, "Site Characteristics"

RAI 2.2-1 Provide an evaluation and aircraft crash probability impact analysis of airway V68, which passes nearby the proposed WCS CISF, in accordance with guidance and acceptance criteria provided in NUREG-1567, Section 2.4.2.

During the NRC staff's review of the information presented in WCS CISF SAR Section 2.2, "Nearby Industrial, Transportation and Military Facilities," the NRC staff identified an airway V68 passing nearby the proposed WCS CISF, which is not addressed by ISP. The closest airport identified is the Lea County Airport, which is 18 miles from the WCS CISF. Provide an analysis and evaluation of airway V68 and incorporate the changes, as appropriate in the application.

This information is needed to determine compliance with 10 CFR 72.94.

RAI 2.2-2 Provide the locations of nearby industrial, transportation, military, and nuclear installations. Describe potential hazards to the proposed WCS CISF from activities or materials at those facilities in accordance with the guidance and acceptance criteria provided in NUREG-1567, Section 2.4.2.

During the NRC staff's review, the NRC staff determined that ISP identified nearby facilities, but did not provide potential impact evaluations of these facilities on the proposed WCS CISF. Specifically, ISP identified a railroad, but did not provide details on products/materials transported by rail; the distance of the rail line from the proposed facility; or the potential impacts (if any) on the proposed facility. ISP identified Texas State Highway 176, but not the shortest distance between the highway and the proposed facility. ISP stated oil industry pipelines are located near the facility in WCS CISF SAR Section 12.2.2, but did not provide details as to what materials are transported in the pipelines; the distance of the pipelines from the proposed facility; or the impacts of the pipelines on the

proposed facility. Different materials can be transported through these pipelines and these different materials can pose different potential hazards to the site.

Also, in accordance with SRP Section 15.5.2.10, ISP should analyze whether the effects of hazards near the site have been addressed as part of the WCS CISF design basis. When evaluating which external hazards should be considered in the design bases for the WCS CISF, ISP should use a screening criteria of 10^{-6} annual probability of exceeding the applicable dose criteria, not $1.0\text{E-}5$, as stated in SAR Section 12.2.2. This criteria was established by the Commission for ISFSI's in the Private Fuel Storage proceeding (CLI-01-22) and further elucidated in CLI-05-19.

If the required impact evaluations are performed in some other section of the SAR, the NRC staff requests that these evaluations be cross referenced in SAR Section 2.2, pointing to where the evaluations are performed and conclusions are addressed for clarity. Provide a revised WCF CISF SAR Section 2.2, with details, additional analyses, and conclusions, as appropriate, by cross referencing the impact evaluations that are presented in Chapter 12, "Accidents Analysis," of the WCS CISF SAR.

This information is needed to determine compliance with 10 CFR 72.94.

RAI 2.4-1 Provide technical justification for the rating curve of the large playa next to the WCS CISF storage area. This may include the outflow area cross section, the equation and parameters used to calculate the curve, and the details of the calculations under all surface water flow scenarios.

In the WCS request for supplemental information response dated December 16, 2016, WCS provided a flood calculation package of the CISF drainage area built on the U.S. Army Corps of Engineer's HEC-HMS model. ISP provided a rating curve of discharge from the large playa depression in the calculation package. ISP also provided outflow rates from the playa for a few surface water flow scenarios in Attachment B to SAR Chapter 2, Site Characteristics. However, the information provided in the attachment did not include the cross-section of the playa outflow area or the equation and parameters to calculate the outflow rates all the way to the top of the cross-section. The NRC staff requires the additional information to verify the rating curve used for the 2016 floodplain study.

This information is needed to determine compliance with 10 CFR 72.90(f) and 72.92(c).

RAI 2.4-2 Provide additional information on the erodibility and long-term erosion of the diversion berms, under normal and extreme precipitation events, through all phases of the proposed WCS CISF facility. Estimate the seepage through and underneath the berms and the impact of seepage to the berms' stability through all phases of the proposed facility.

In WCS CISF SAR Section 2.4.2.2, ISP stated that flood events are modeled without including the collection ditch and diversion berms to provide the greatest possible area contributing runoff to the playa that serves as a water detention pond and potentially to increase the water level of the playa. ISP stated that the

ditch and berm are to be constructed to minimize, not prevent, run-on of storm water by diverting it around the operational storage area. ISP stated that compromise of the collection ditch and diversion berms upstream of the CISF facility may result in increased flow across the storage area during some precipitation events. ISP further stated that this increase of flow would be short term and temporary in nature. However, because of the build-up of water and sediment behind the berm can potentially create a flood water wave higher than those modeled without the berm in the event that the berm is breached. The NRC staff requires additional information to evaluate the likelihood that events and processes (e.g., overtopping, breach of berm structure, and short- and long-term erosion) may negatively impact the integrity of the system, structure and component in the storage area. Additionally, the NRC staff requires the estimates of seepage through and underneath the berms and the impact of the seepage to the berms' stability through all phases of the proposed CISF facility to evaluate potential impact of subsurface water to the foundation of the storage pads.

This information is needed to determine compliance with 10 CFR 72.90(f).

RAI 2.4-3 Provide clarification as to what is the exact design of WCS CISF rail side track, in particular the section east of the storage area.

In its 2016 floodplain analysis, ISP considered four drainage areas in the watershed encompassing the WCS CISF (i.e., P DA 1, P DA 2, P DA 3, and P DA 4, see SAR Figure 2-35). ISP stated that drainage area P DA 3 contains 42.8 acres and drains the southeast portion of the CISF site bounded by the existing WCS railroad and the CISF rail side track and that surface water runoff from P DA 3 discharges into the large playa located east of the facility (SAR Chapter 2 attachment B).

In reviewing the SAR, the NRC determined that the eastern portion of the CISF rail side track are not consistently identified in the site plan depicted in SAR Figures 2-1, 2-3, 2-4 and 2-15 versus that depicted in SAR Figure 2-35 and SAR Chapter 2, Attachment B, Figures 1.1.2-2 and 2.2.1-1. The drainage area P DA 3 depicted in the former group of figures appears to be larger than that depicted in the latter. Difference in the area of drainage P DA 3 may cause different flood water level on the south eastern corner of the storage area. If drainage area P DA 3 is correctly depicted in SAR Figure 2-35, the NRC staff requests that ISP correct the side rail track design in SAR Figures 2-1, 2-3, 2-4 and 2-15. If drainage area P DA 3 is correctly depicted in SAR Figure 2-1, the NRC request that ISP provide a floodplain analysis using the site plan in Figure 2-1.

This information is needed to determine compliance with 10 CFR 72.90(a) and (f).

RAI 2.6-1 Clarify the origin of the circular features as identified in the red circles on Figure 2-3 below. Specifically, provide the dimensions of the features and determine whether they might represent surface deformation at the site due to subsurface dissolution resulting from past or ongoing natural processes or human activities

in the site area, as mentioned in WCS CISF SAR Section 2.6.1. Also, discuss the potential for similar features to develop at the site in the future.

WCS CISF SAR Section 2.6.1 states, “near-surface regional structural controls may be locally modified by differential subsidence related to groundwater dissolution of Permian salt deposits.” However, the SAR does not specify where these locally modified areas of differential subsidence are located relative to the proposed site. The NRC staff noted the history of oil and gas exploration and extraction activities in the site area and the presence of some features in SAR Figure 2-3 that are circular in shape (i.e., similar to sinkholes or swales), some of which are shallow depressions 2 to 7 feet in depth.

This information is needed to determine compliance with 10 CFR 72.103(f)(1) and 10 CFR 72.103(f)(2)(ii).

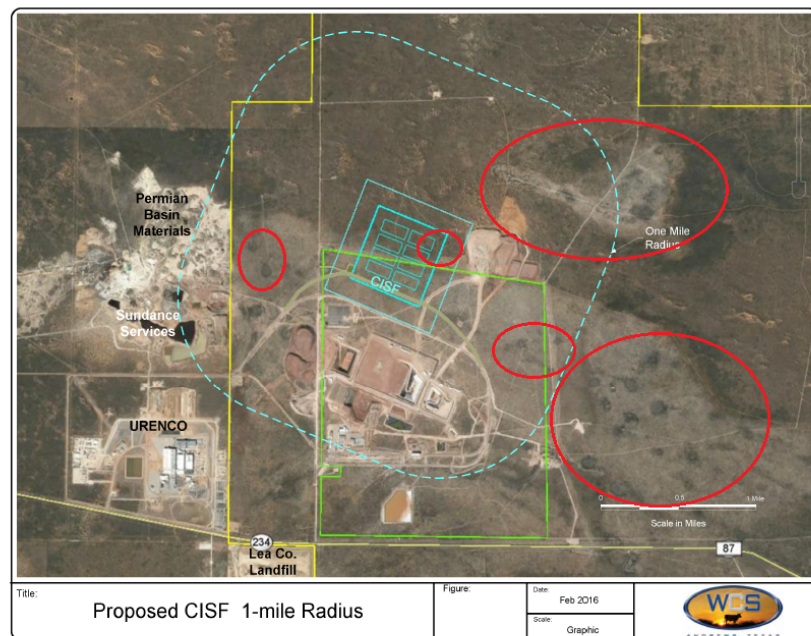


Figure 2-3
Proposed WCS CISF 1-mile Radius

- RAI 2.6-2** Describe the origin and extent of the red-bed ridge mentioned in Attachment F, including: the relationship of the ridge to structures such as the inferred anticline and Mescalero Ridge escarpment described in Attachment F, or other local and regional geologic structures, including folds, faults or lineaments. Provide a figure showing the location of the red bed ridge relative to the WCS site. Provide an estimate of the depth to the crest and flanks of the red bed ridge and the estimated slope gradient from the crest to the flanks of the red-bed ridge at the WCS site, including a geotechnical stability analysis, if appropriate.

WCS CISF SAR Section 2.6.1 does not discuss the red-bed ridge, its origin or extent at the site, or its potential association with local and regional geologic structures or features. Attachment F to SAR Chapter 2 also notes that the red-bed ridge is parallel to regional escarpments, including the Mescalero Ridge in New Mexico. Attachment F concludes that the red-bed ridge is not the result of halite dissolution, but a “structural high exists in the southwestern part of the site area and is likely the eastern limb of a north-northwest trending anticline;” the anticline “appears to coincide with the red-bed ridge.” Previous site investigation reports from April 2000 (ML041910475) and February 2004 (ML041910489) describe the red-bed ridge as a paleotopographic divide between the Ogallala Aquifer and the Cenozoic basin fill aquifer or as a subsurface structure associated with a regional lineament that developed along the preferred jointing direction (300-310°). The NRC staff noted that based on boring logs from the monitoring wells, the slope gradient of the top of red-beds beneath the site may be as high as 5 percent, while the February 2004 report notes that the slope gradient may vary between 0.6 and 6.2 percent.

This information is needed to determine compliance with 10 CFR 72.103(f)(1).

RAI 2.6-3

Provide justification for why soil boring to depths greater than 45 feet are not needed.

WCS CISF SAR Section 2.6.4 states that the WCS CISF subsurface conditions were explored with eighteen soil borings. Among the eighteen borings, four borings encountered auger refusal conditions at depths ranging from 37 to 45 feet below ground surface (bgs), and fourteen borings were terminated at 25 feet bgs. General industrial guidance for geotechnical investigations, such as US Army Corps of Engineering¹ and FHWA² manual/standard, recommends the boring depth, for example, (1) be at least to a depth where the increased stress due to the estimated footing load is less than 10% of the existing effective overburden stress, (2) be 1.5 times the minimum dimension of footing below the base of the footing, or (3) penetrate a minimum of 3 meters into the bedrock, if bedrock is encountered before other required depths.

References:

1. US Army Corps of Engineers “Geotechnical Investigations” (EM 1110-1-1804, 1 January 2001).
2. FHWA “GEOTECHNICAL ENGINEERING CIRCULAR NO. 5 Evaluation of Soil and Rock Properties” (April 2002)

This information is needed to determine compliance with 10 CFR 72.103(f)(1) and 10 CFR 72.103(f)(2)(iv).

RAI 2.6-4

Provide the following information with respect to the laboratory investigations:

- a. Justify how the soil strength and deformation properties of the cohesive soils were determined and how the settlement potential of the clay stratum can be

adequately evaluated given the absence of consolidated undrained triaxial tests and consolidated tests.

- b. Provide results from the California Bearing Ratio (CBR) testing.
- c. A description of the laboratory tests (including the test results) that were completed after the submittal of the Geotechnical Exploration Report (Attachment E to the SAR).

WCS CISF SAR Section 2.6.4 states the following tests were performed for this application: Atterberg Limits; Natural Moisture Content; Particle Size Analysis; Resistivity of Soil; Consolidated Undrained Triaxial Test; Standard Proctor Moisture-Density Tests; California Bearing Ratio; and Consolidation. However, Subsection 2.2 "Laboratory test program" of the Geotechnical Exploration Report (Attachment E to SAR) states that consolidated undrained triaxial tests and consolidation tests were not conducted because undisturbed Shelby tube samples could not be obtained due to the caliche. These tests are important for determining the shear strength parameters and consolidation characteristics of soil. Moreover, in the same subsection ISP indicated that one CBR test was performed. The staff reviewed ISP's soil data summary enclosed in Attachment E, Appendix B to the SAR, and the CBR testing results were not reported. Additionally, Subsection 2.2, "Laboratory test program," of the Geotechnical Exploration Report (Attachment E to SAR) states, "At the time this report was prepared, some of the laboratory testing was still on-going." In order for the NRC staff to perform a complete evaluation of the laboratory investigations, ISP should provide a complete description of the laboratory tests, including the test results.

This information is needed to determine compliance with 10 CFR 72.103(f)(1) and 10 CFR 72.103(f)(2)(iv).

- RAI 2.6-5** Provide the basis for using 20% of the dynamic modulus for the static elastic modulus as these values are considerably higher for similar soils.

Appendix D of the Geotechnical Exploration Report (Attachment E to SAR) provides the calculated static elastic moduli used for the design and analysis for a depth of 100 ft bgs. These calculated static elastic moduli are based on derived dynamic moduli from seismic wave values determined by the refraction micro-tremor (ReMi) method. Specifically, ISP used 20% of the dynamic modulus as the static elastic modulus for design and analysis. However, these elastic moduli exceed the typical range of values for similar soils reported by various engineering literatures.

This information is needed to determine compliance with 10 CFR 72.103(f)(1) and 10 CFR 72.103(f)(2)(iv).

- RAI 2.6-6** Provide the following information regarding the slope stability evaluation:

- a. Water resources in the site vicinity along with a description of its location; such as dams, natural or manmade ponds and how the stability of their embankments might affect the site.

- b. When referring to the natural or manmade slopes, define the words “close enough” relative to the WCS CISF facilities and justify why the failure of these slopes would not adversely affect WCS CIFS facilities for phase 1 or for the total area of the proposed site, whichever applies.

WCS CISF SAR Section 2.6.5 provides general information regarding the slope stability of the site. Also, SAR Section 2.7 provides additional information linked to the slope stability of the site. SAR Section 2.7 states: “There are no slopes, natural or manmade, close enough to the proposed WCS CISF facilities that their failure would adversely affect these facilities.”

This information is needed to determine compliance with 10 CFR 72.103(f)(1) and 10 CFR 72.103(f)(2)(iv).

Safety Analysis Report (SAR), Chapter 15, “Materials Evaluation”

RAI 15-1. Clarify the following statements in WCS CISF SAR Appendix A, B, C and D, Section 3.4.6, “Material Selection.”

1. Provide an applicable reference for the following statement:
The DSC and cask materials are resistant to corrosion and are not susceptible to other galvanic reactions. Studies under severe marine environments have demonstrated that the shell materials used in the DSC shells are expected to demonstrate minimal corrosion during an 80-year exposure.
2. Clarify the range of environmental conditions expected for the Dry Shielded Canister (DSC) internals referenced in the following statement:
The DSC internals are enveloped in a dry, helium-inerted environment and are designed for all postulated environmental conditions.
3. Clarify the design life of the Horizontal Storage Module (HSM) in the following statement:
The HSM is a reinforced concrete component with an internal DSC support structure that is fabricated to ACI and AISC Code requirements. Both have durability well beyond a design life of 80 years.

The NRC staff note that the following information is included in the UFSARs referenced in the WCS CISF application:

- Rancho Seco UFSAR Section 1.2, “General Description of the Installation,” indicates the system design life is 50 years.
- The Advanced NUHOMS UFSAR (CoC 72-1029) does not specifically identify a design life.
- The Standardized NUHOMS UFSAR indicates a service life of 50 years for the DSCs, TCs, and HSMs.

This information is needed to determine compliance with 10 CFR 72.24(c).

RAI 15-2. Provide the following for the MP-187 system:

1. Drawings or a table that indicates the safety classification of the MP187 system structures, systems, and components (SSCs).

None of the drawings for the MP-187 system includes a safety classification for the components of the DSCs or the MP-187. Drawings for the MP-187, FO-, FC-, and FF- DSCs are in the Rancho Seco SAR part 2 pages 813-830 (Docket No. 72-11). No Model 80 HSM or GTCC canister is included. The Model 80 HSM is in Appendix E.2 of the 72-1004 UFSAR. No HSM drawings are included in either the Rancho Seco or MP-187 UFSARs.

2. The complete set of drawings for the greater-than-Class C (GTCC) canister currently stored at Rancho Seco.

The internal structure and contents of the Rancho Seco GTCC canister are not included in the drawings in the WCS CISF SAR Appendix H. In addition, provide the applicable codes and standards for the design and construction of the Rancho Seco GTCC canisters including code alternatives.

This information is needed to determine compliance with 10 CFR 72.24(c)(3) and (c)(4).

- RAI 15-3.** Clarify whether the 24PT1 canisters from San Onofre included in the WCS CISF SAR include the GTCC canister. If the GTCC canister from San Onofre is included in the SAR, provide drawings for this GTCC canister.

The NRC staff note that there are currently 17 24PT1 canisters loaded with spent fuel at San Onofre. One of the canisters is loaded with GTCC from San Onofre 1. The GTCC is not in the approved contents of the 24PT1 DSC in the 72-1029 CoC (i.e., not included in technical specifications for the 72-1029 system (NRC ADAMS ML15054A513)).

This information is needed to determine compliance with 10 CFR 72.24(c).

- RAI 15-4.** Provide the complete set of drawings for the GTCC canisters currently stored at Maine-Yankee, Yankee-Rowe, Connecticut-Yankee, and Zion.

The drawings in WCS CISF SAR Appendix H are only of the multi-purpose cask (MPC), not the basket or the contents. In addition, provide the applicable codes and standards for the design and construction of these GTCC canisters.

This information is needed to determine compliance with 10 CFR 72.24(c)(3) and (c)(4).

- RAI 15-5.** Clarify the quality category of the MP197HB cask used for transportation and transfer operations for the 61BT and 61BTH DSCs.

WCS CISF SAR Appendix C.4.2.3 (61BT DSC) states that the MP197HB is an Important to Safety (ITS) Quality Category C component, whereas Appendix D.4.2.3 (61BTH DSC) states that the MP197HB is an ITS Quality Category A component.

This information is needed to determine compliance with 10 CFR 72.24(c)(3) and (c)(4).

- RAI 15-6.** Identify the code exceptions for the 72-1029 system components designed and fabricated in accordance with the ASME code in WCS CISF SAR Appendix B, Section B.3.4.6. "Material Selection." These are listed in 72-1029 UFSAR (R-6) Table 3.1-14.

This information should be included and specifically referenced in the application. See the reference to code exceptions in WCS CISF SAR Appendix A, Section A.3.4.6, "Material Selection," as an example.

This information is needed to determine compliance with 10 CFR 72.24(c)(3) and (c)(4).

- RAI 15-7.** Specify the Quality Category of the coatings for the NAC-MPC vertical concrete cask and transfer cask identified in WCS CISF SAR Appendix E Sections E.7.1.10 and E.7.2.10.

The NRC staff note that the NAC-MPC UFSAR Section 3.8 and 3.A.8 do not specify whether the coatings are ITS. In contrast, the NRC staff note that the NAC-UMS UFSAR (72-1015) Section 3.8 has a statement indicating that the coatings are Not Important to Safety (NITS). Similarly, the NAC-MAGNASTOR UFSAR Section 8.6.2 has a statement indicating that the coatings are NITS.

This information is needed to determine compliance with 10 CFR 72.24(c)(3) and (c)(4).

- RAI 15-8.** Provide additional information to justify the classification of the 130-ton Crane and the WCS Lift Beam as NITS Components based on the NUHOMS system transfers being limited to heights of less than 80 inches.

Rancho Seco FSAR Appendix B, "Standardized SAR References," Section 8.2.5.1 states:

The height of 80 inches is chosen as this envelopes the maximum vertical height of the transfer cask when secured to the transport skid/trailer assembly.

The transfer operation (shown in WCS CISF SAR Figure A.5-1) of the loaded MP187 from an incoming railcar to the NUHOMS Transfer Trailer that takes place in the canister handling building (shown in WCS CISF SAR Figure 1-7) appears to involve a lift of the NUHOMS system that is greater than 80 inches because the underside of the MP187 transfer cask (in the horizontal position as shown in Figure A.5-1) will be lifted above the trunnion attachment points on the MP187 Transfer Trailer. As described, the dimensions of the MP187 Transfer Trailer and the MP187 Cask, and the description of the WCS canister handling building and the transfer operation do not support a lift height of no more than 80 inches.

This information is needed to determine compliance with 10 CFR 72.24(c), 72.24(d)(1) and (2), and 72.24(h).

RAI 15-9. Provide information to show that the design criteria for the GTCC storage systems are the same as or bounding with respect to the WCS CISF site specific conditions.

The WCS CISF SAR Appendices A through G provide a comparison of the principal design criteria of the spent fuel storage systems to the conditions of the WCS CISF storage site. No such comparison was provided for the GTCC storage systems in the WCS CISF SAR.

This information is needed to determine compliance with 10 CFR 72.24(c), 72.24(d)(1) and (2).

RAI 15-10. Provide the following information for ASTM A572 Grade 50 steel: (1) modulus of elasticity, (2) coefficient of thermal expansion, and (3) density.

This material is identified in WCS CISF SAR Section 15.3.2, "Canister Transfer System," and Section 15.3.3, "Vertical Cask Transporter." These property specifications are not provided in WCS CISF SAR Sections 15.3.2 and 15.3.3.

This information is necessary to assure compliance with 10 CFR 72.24(c)(3) and (c)(4).

RAI 15-12. Clarify whether the NUHOMS MP187 Multi-Purpose Cask will potentially be used to contain a failed NUHOMS Dry Shielded Canister (DSC) such as a FO-, FC-, or FF- DSC currently in use at Rancho Seco or the 24PT1 DSCs that are in use at the San Onofre ISFSI.

Procedures for placement of a DSC into the metal cask for storage at an onsite facility are described in Section 7.1.6 of the NUHOMS MP187 Multi-Purpose Cask Safety Analysis Report (ADAMS Accession No. ML063520505).

This information is needed to determine compliance with 10 CFR 72.24(e) and (h).

RAI 15-13. Clarify the incorporation of approved aging management programs for the 61BT and 61BTH DSCs that are part of CoC No. 1004. CoC No. 1004 was renewed in December 2017.

The CoC holder has developed NRC approved aging management programs (AMP) for the 72-1004 SSCs including the DSCs. WCS CISF SAR Section 1.1 page 1-3 states: "*As these systems approach 20 years of service time, their applications for License Renewal, including Aging Management Program (AMP) requirements, will be submitted to the NRC for review and approval.*" However, the WCS CISF application does not include AMP for this system.

This information is needed to determine compliance necessary to assure compliance with 10 CFR 72.42(a)(2) and 72.240(c)(3).

Consolidated Emergency Response Plan (CERP)

RAI EP-1: Clarify the approval authority for the proposed CERP.

The regulation in 10 CFR 72.44(f), states, in part: "A licensee shall follow and maintain in effect an emergency plan that is approved by the Commission." However, the transmittal letter dated March 16, 2017, states:
A Draft WCS Emergency Response Plan (ERP) is included as part of this revised application. WCS is required to seek agreement state approval for changes to the ERP, and therefore, only a draft version is provided until such time that NRC approves the content of the ERP and agreement state approval may be sought.

This information is necessary to determine compliance with 10 CFR 72.44(f).

RAI EP-2: Identify any part of the CERP that does not apply to the 10 CFR 72.32(a) requirements for the CISF.

Section 3.1, "Classification System," of RG 3.67 states in part:
The licensee should clearly identify any part of the emergency plan does not apply to activities licensed by the NRC.

This information is necessary to determine compliance with 10 CFR 72.44(f).

RAI EP-3: Provide the location where emergency response personnel will observe indications for fire and smoke alarms and for radiation monitoring instrumentation.

Section 2.2, "Detection of Accidents," of the proposed CERP states, in part:
Detection of accidents is dependent on personnel observation, by fire and smoke alarms, and radiation monitoring instrumentation.

The proposed CERP should state the specific location where personnel can observe indications of alarms and radiation monitoring instrumentation for the detection of an accident and to ensure accurate and timely emergency classification.

This information is necessary to determine compliance with the requirements of 10 CFR 72.32(a)(4).

RAI EP-4: Clarify the statements in Section 3.1, "Classifications of Accidents," of the proposed CERP, which refer to classification of accidents at the proposed CISF for both an Alert and Site Area Emergency declarations.

The provisions of 10 CFR 72.32(a)(3), "*Classification of accidents*," only require an "Alert" classification for accidents at an independent spent fuel storage installation (ISFSI), while 10 CFR 72.32(b)(3) requires a classification for accidents at a monitored retrievable storage facility as either an "alert" or "site area emergency."

Section 3.1, of the proposed CERP states, in part:
Emergencies are classified as an Alert or Site Area Emergency.

This information is necessary to determine compliance with 10 CFR 72.32(a)(3).

RAI EP-5: Clarify the statements in Table A, "Emergency Classification," of the proposed CERP, which refer to a response to an Alert classification at the proposed CISF. The provisions of 10 CFR 72.32(a)(8) states, in part:

The licensee shall also commit to notify the NRC operations center immediately after notifications of the appropriate offsite response organizations and not later than one hour after the licensee declares an emergency.

Table A of the proposed CERP for response to a Site Area Emergency classification states, in part:

...Notify state and local agencies.

Notify the NRC Operations Center immediately after off-site notifications are made and no later than 1 hour after declaring a Site Area Emergency.

However, there is no statement regarding notification of the State and local agencies, as well as the NRC Operations Center for an Alert classification.

This information is necessary to determine compliance with 10 CFR 72.32(a)(8).

RAI EP-6: Clarify the individual (designated emergency response organization (ERO) position) on site at all times (24-hour per day, 7 days per week) with the authority and responsibility to accurately and timely perform emergency classification, and notify offsite agencies and the NRC.

Section 4.4, "Incident Commander (IC)," of the proposed CERP states, in part:

The IC or alternate is on the facility premises or on call 24 hours a day (i.e., available to respond to an emergency by reaching the facility within less than one hour if after working hours). In the absence or unavailability of the primary IC, an alternate IC is designated as the primary IC under a delegation of authority memorandum.

Section 4.4.1, "Delegation and Assignment," of the proposed CERP states, in part:

These personnel may not always be present at the facility when an event occurs. One of the ICs listed in Attachment F, Emergency Information List of EP-1.1, Consolidated Emergency Response, is always on-call. If the on-call IC is not at the facility, then he / she is available to those individuals present at the facility through communication device or other means.

Section 5.1.3, "Initial Response and Notification," of the proposed CERP states, in part:

WCS Security Officers are trained to assume the duties of initial response and notification during these times. Upon detecting a perceived emergency, Security personnel on duty will immediately inform the IC.

This information is necessary to determine compliance with 10 CFR 72.32(a)(7).

RAI EP-7: Clarify the NRC's responsibilities for detecting, measuring and supervising cleanup for a release of Agreement State licensed radioactive materials at the proposed CISF.

Section 4.11, "Coordination with Participating Government Agencies," of the proposed CERP states, in part:

*The DSHS [Department of State Health Services], TCEQ [Texas Commission on Environmental Quality] and **NRC** have responsibilities for detecting, measuring, and supervising cleanup of radioactive materials that are released into the environment.*

This information is necessary to determine compliance with 10 CFR 72.32(a)(7) and (8).

RAI EP-8: Clarify what State (Texas and/or New Mexico) and local response organizations that are notified at the declaration of an Alert classification. Additionally, what is the timing of these notifications?

Section 4.10, "Activation of the ERP [Emergency Response Plan]," of the proposed CERP states, in part:

- *Activation for any reason is reported to the TCEQ Region 7...*
- *If an emergency is declared notify the DSHS emergency number...within one hour of contacting off-site response agencies...*

This information is necessary to determine compliance with 10 CFR 72.32(a)(8).

RAI EP-9: Clarify how the source term is determined for a release from the proposed CISF. Section 5.2, "Accident Assessment," of the proposed CERP states, in part:

The WCS inventory program can provide a real time radiological source term. This inventory tracking program can provide immediate real time information on the radionuclides that are stored in the specific areas impacted by the incident/accident.

This information is necessary to determine compliance with 10 CFR 72.32(a)(6).

RAI EP-10: Clarify if there are agreements in place or a memorandum of understanding with the New Mexico State Police.

Section 5.3.1, "Mitigation of Fires," of the proposed CERP states, in part:
*In the event of a catastrophic fire, the Andrews and Lea County Sheriff's Departments, Texas Department of Public Safety and/or the **New Mexico State Police** are responsible for directing traffic along Highway 176 and evacuating any of the general public surrounding the facility that may be affected by windblown or gaseous wastes.*

This information is necessary to determine compliance with 10 CFR 72.32(a)(8).

- RAI EP-11:** Clarify if there are agreements in place or a memorandum of understanding with the State of New Mexico for notification of the transportation of a contaminated person for treatment at a medical facility in New Mexico.

Section 5.3.5, "Mitigation of Injuries," of the proposed CERP states, in part:
The primary treatment facility for radiological contaminated individuals will be the Carlsbad Medical Center in Carlsbad, New Mexico....

This information is necessary to determine compliance with 10 CFR 72.32(a)(8).

- RAI EP-12:** Clarify what recommended protective actions will be provided to off-site response organizations for the design-basis accidents at the CISF related to the ISFSI.

Section 5.4.5, "Off-site Protective Actions," of the proposed CERP states, in part:
After declaration of a Site Emergency, the IC has the authority to recommend off-site protective actions. The IC or designee will make off-site notifications to local authorities.

This information is necessary to determine compliance with 10 CFR 72.32(a)(9).

- RAI EP-13:** Revise the threshold limits in Section 5.5, "Exposure Control," and Table B, "Protective Action Guidance," of the proposed CERP to ensure consistency with the latest version of the U.S. Environmental Protection Agency (EPA) Protective Action Guide (PAG) Manual for early phase PAGs.

Section 5.5, "Exposure Control," of the proposed CERP states, in part:

The PAG threshold of concern for WSC is based on the EPA limits of less than one Rem Committed Effective Dose Equivalent (CEDE), five Rem thyroid, or 50 Rem skin dose at the site boundary.

Reference – "Manual of Protective Action Guides and Protective Actions for Nuclear Incidents," Office of Radiation Programs, USEPA, 1992

These limits are not consistent with those provided in either Table 2-1, "PAGs for the Early Phase of a Nuclear Incident," of the Manual of Protective Action Guides and Protective Actions for Nuclear Incidents (EPA-400-R-92-001, May 1992) or in Table 1-1, "Summary Table for PAGs, Guidelines, and Planning Guidance for Radiological Incidents," of the PAG Manual: Protective Action Guides and Planning Guidance for Radiological Incidents (EPA-400/R-17/001, January 2017).

This information is necessary to determine compliance with 10 CFR 72.32(a)(9).

RAI EP-14: Provide a basis for the size of the emergency planning zone (EPZ) with respect to the CISF, and clarify the definitions for chief elected officials in Section 5.9, “Emergency Planning Zone,” of the proposed CERP.

Section 5.9 of the proposed CERP states, in part:

Based on the potential consequences of postulated emergencies, the EPZ for the WCS Facility has been defined as 6km [kilometer] (3.7 mile) radius circle centered on the Site.

Section 5.9 further states:

The size of the EPZ is sufficiently large that:

- *Detailed planning **within the EPZ** provides both an adequate basis for responding to all reasonably credible accidents and a substantial base for the expansion of response efforts in the event that this proves necessary by WCS, State of Texas, local agencies and other organizations responsible for off-site emergency response.*
- *Projected maximum doses resulting from credible accidents, under unfavorable meteorological conditions, within the site will not require protective actions to be taken outside the EPZ.*

Chief elected officials responsible for various portions of the WCS EPZ will provide the **public information** on operational emergencies at the WCS Facility and, based on inputs from the site and regulatory agencies, **may recommend public protective actions, such as sheltering or evacuation.**”

The NRC staff needs additional information related to agreements or a memorandum of understanding with the State of New Mexico due to the proposed size of the EPZ includes several miles of the State of New Mexico, as well as an NRC-licensed fuel facility. The NRC staff also needs further clarification on the definition of “Chief elected officials,” as referenced in Section 5.9.

This information is necessary to determine compliance with 10 CFR 72.32(a)(1) and 10 CFR 72.32(a)(9).

RAI EP-15: Provide a description, by position or title, of the person responsible for developing, maintaining and updating the CERP.

Section 7.0, “Maintaining Emergency Preparedness Capability,” of the proposed CERP does not include the identification of the personnel responsible for developing, maintaining, and updating the plan, as required in 10 CFR 72.32(a)(7).

This information is necessary to determine compliance with 10 CFR 72.32(a)(7).

RAI EP-16: Clarify that the change process for the proposed CERP under the QA [Quality Assurance] Program will be evaluated in accordance with 10 CFR 72.44(f), and that maintenance and updating of the CERP will be consistent with the requirements of 10 CFR 72.32(a)(14).

Section 7.1, "Written Emergency Plan Procedures," of the proposed CERP states, in part:

Changes to ERP-100, Emergency Response Plan, and EP-1.1, Consolidated Emergency Response, are composed in accordance with QA-5.1, Standard Operating Procedures and Work Instructions.

This information is necessary to determine compliance with 10 CFR 72.44(f) and the requirements of 10 CFR 72.32(a)(14).

RAI EP-17: Clarify how the training of the staff at the Lea Regional Medical Center and Carlsbad Medical Center by the Waste Isolation Pilot Plant (WIPP) is verified and documented.

Section 7.2.3, "Off-Site Response Teams," of the proposed CERP states, in part:

Currently, the staff at the Lea Regional Medical Center in Hobbs, New Mexico and Carlsbad Medical Center in Carlsbad, New Mexico train with WIPP.

This information is necessary to determine compliance with 10 CFR 72.32(a)(10).

RAI EP-18: Clarify or revise the frequency and scope of the emergency planning drills and exercises, as provided in Section 7.3 of the CERP.

Section 7.3, "Drills and Exercises," of the proposed CERP states, in part:

Emergency drills and exercises are conducted systematically....

[...]

Consistent with the requirements in 10 CFR 72.32 (a) and (b), documented quarterly communications checks with off-site response organizations will include the check and update of all necessary telephone numbers."

This information is not consistent with 10 CFR 72.32(a)(12), "Exercises," which states, in part:

[p]rovisions for conducting semiannual communications checks with offsite response organizations and biennial onsite exercises to test response to simulated emergencies. Radiological/Health Physics, Medical, and Fire drills shall be conducted annually.

Section 7.3 of the proposed CERP does not contain provision identified for radiological/health physics, medical, and fire drills to be conducted annually, or a requirement to conduct a biennial exercise. Additionally, communication checks are required semiannually, rather than quarterly as identified in Section 7.3.

This information is necessary to determine compliance with 10 CFR 72.32(a)(12).

RAI EP-19: Justify why the most recent version of the NRC endorsed methodology for the development of emergency action levels (EALs) was not used in the development of the EALs for the WCS CERP specific to the CISF.

The guidance used by the industry for the development of EALs is the Nuclear Energy Institute (NEI) document, NEI 99-01 "Development of Emergency Action Levels for Non Passive Reactors," Revision 6, dated November 2012 (ADAMS Accession No. ML12326A805). Specifically, Section 1.3, "Independent Spent Fuel Storage Installation (ISFSI)," provides guidance on the development of EALs for an ISFSI.

This information is necessary to determine compliance with 10 CFR 72.32(a)(3).

RAI EP-20: Justify the Alert criteria and the dose thresholds used for the radiological plume incident in Appendix C, "Facility Emergency Action levels," of the proposed CERP.

Appendix C contains the following Alert criteria for a radiological plume incident:

>100 mrem CEDE but <500 mrem CEDE from an accidental release of radioactive material to the general public.

-----or-----

>1 rem CEDE in a Facility from an accidental release of radioactive material to Facility workers.

Additionally, Appendix C contains the following Site Area Emergency criteria for a radiological plume incident:

>500 mrem CEDE but <1 rem CEDE from an accidental release of radioactive material to the general public.

-----or-----

>1 rem CEDE, calculated at a facility boundary, from an accidental release of radioactive material to Facility workers.

These criterion are not consistent with the analysis for dry cask storage of spent fuel in NUREG-1140, "A Regulatory Analysis on Emergency Preparedness for Fuel Cycle and Other Radioactive Material Licensees," dated January 1988, (ADAMS Accession No. ML062020791). Additionally, the Alert criteria is more representative of the typical thresholds for a Site Area Emergency classification. Please provide justification for the use of these radiation levels as thresholds for an Alert classification, or revise accordingly.

In addition, the use of a CEDE dose threshold is inconsistent with NRC-endorsed EAL guidance. Please provide a justification for using the CEDE dose, or revise accordingly consistent with the latest NRC-endorsed EAL guidance.

This information is necessary to determine compliance with 10 CFR 72.32(a)(3).